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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/849,883	05/21/2004	Junichi Kitagawa	01165.0916	8583

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EXAMINER

MENZ, DOUGLAS M

ART UNIT	PAPER NUMBER
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2891

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/849,883	Applicant(s) KITAGAWA ET AL.	
	Examiner Douglas M. Menz	Art Unit 2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 1,2 and 12-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 3-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Newly submitted claims 12-33 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Claims 12-33 constitute separate and patentably distinct Species of the claimed invention.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 12-33 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 3-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawakami et al. (US 6399520).

Regarding claim 3, Kawakami discloses a an oxide film forming process (abstract), comprising:

Irradiating the surface of an electronic device substrate with plasma in the presence of a process gas containing at least water vapor at a pressure of 6.67-266Pa, so as to form an oxide film on the surface of the electronic device substrate (Col. 15, line 45 – Col. 16, line 21).

Regarding claim 4, Kawakami further discloses wherein the oxide film is formed at a temperature lower than 500 degrees Celsius (Col. 15, lines: 60-62).

Regarding claim 5, Kawakami further discloses wherein the plasma is generated on the basis of microwave irradiation through a plane antenna member having a plurality of slits (Col. 2, lines: 30-40 and Col. 15, lines: 60-65).

Regarding claim 6, Kawakami further discloses wherein the process gas contains a rare gas, and the amount of water vapor is 0.2 – 2 volume % with respect to the rare gas (Col. 15, line 45 – Col. 16, line 21).

Regarding claim 7, Kawakami further discloses wherein the rare gas is Kr, Ar, or He (Col. 15, lines: 35-60).

Regarding claim 8, it is inherent that Kawakami further discloses wherein the plasma has an electron temperature of 1.5 eV or less given the processing conditions disclosed (e.g. Col. 15, lines: 55-65).

Regarding claim 9, Kawakami further discloses wherein the electronic device substrate (i.e. wafer) is preheated before the plasma is ignited (Col. 8).

Regarding claim 10, it is inherent that Kawakami further discloses wherein the electronic device substrate is preheated for a period of 30 seconds or more given the processing conditions disclosed (Col. 8).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al. (US 6399520).

Kawakami discloses the process limitations of claims 3 and 10 as mentioned above. However, Kawakami does not explicitly disclose wherein the electronic device substrate (i.e. wafer) is washed before the plasma processing thereof. Washing a

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device substrate before subjecting it to further processing steps is well known in the semiconductor manufacturing field and would therefore have been an obvious step to one of ordinary skill in the art at the time the invention was made.

Response to Arguments

Applicant's arguments filed 12/8/05 have been fully considered but they are not persuasive. Applicant has amended claim 3 to include the limitation of a processing pressure of 6.67 – 266 Pa and argues that Kawakami does not disclose such a pressure. As mentioned above, Kawakami discloses a processing pressure of 50 mTorr – 1 Torr, which converts to 6.67 Pa – 133 Pa. Therefore, Kawakami clearly discloses the pressure range in question.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas M. Menz whose telephone number is 571-272-1877. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DM



CHRISTIAN D. WILSON
PRIMARY EXAMINER